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NESTING CHRONOLOGY OF THE SHARP-SHINNED  
HAWK IN ALABAMA

Jimmie R. Parrish and George S. Wise, III

The Sharp-shinned Hawk (Accipiter striatus) has been reported as abundant throughout the United States, except in the extreme Southeast (Jones 1979). Although once regarded as a species of special concern in Alabama (Keeler 1976), the sharp-shinned has more recently been reported as fairly common and may be increasing in the State (Alabama Agricultural Extension Service 1984).

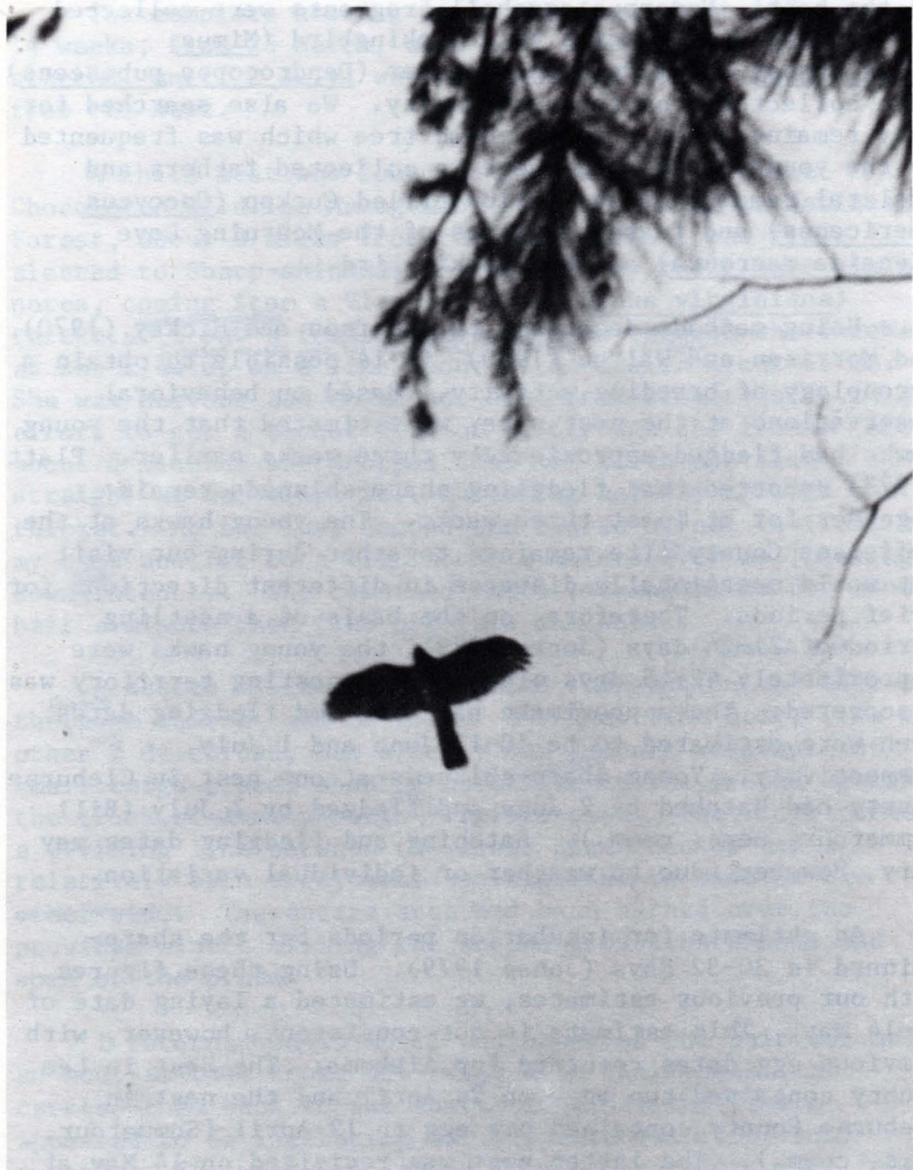
During the nesting season, the Sharp-shinned Hawk is most abundant in the eastern provinces of Canada (Brown and Amadon 1976). The species has been described as a locally common, permanent resident in the northern half of Alabama (Imhof 1976), yet records are available for only three nestings. Bill Summerour (pers. comm.) recorded a nesting for Lee County in 1954 and one for Cleburne County in 1967. Herein, we report on a nesting of the Sharp-shinned Hawk in Jefferson County, Alabama, during the 1985 nesting season, and compare with nesting chronology recorded elsewhere in the State and in other parts of the species' breeding range.

On 10 July 1985, GSW sighted a Sharp-shinned Hawk in immature plumage near Old Camp Cosby in Jefferson County. The bird was sighted in a partially cleared woodlot located on the east facing slope of a small ridge near Cosby Lake. The area appeared to have been recently logged, as several of the downed trees had been cut recently. The logged portion of the east slope of the ridge was approximately 8 ha in size. The uncut portion of the ridge was dominated by hardwoods mixed with pines. Similar habitat has previously been reported as favored by nesting sharp-shinneds with nests usually placed in a conifer (Platt 1973; Hennessy 1978; Jones 1979). Approximately 14.2 ha had been logged on the west slope of the ridge immediately opposite the area where the immature sharp-shinned was sighted initially. An uncut portion was left standing along the crest of the ridgeline between the two logged areas.

A subsequent visit to the site was made on 24 July by the authors. Three Sharp-shinned Hawks in immature plumage were sighted, one female and two males. The female of each species of the genus Accipiter is known to be considerably larger than the male (Snyder and Wiley 1976). Although sharp-shinneds have been reported to breed while still in immature plumage (Fischer 1984), the behavior which we observed was not typical of the aggressive response by breeding sharp-shinneds towards intruders (see Bent 1937). The young hawks circled over the ridge just above tree height (Fig. 1), and, except for an occasional call, appeared to be unconcerned by our presence. The calls uttered are best described as the "squealing cries" reported by Brown and Amadon (1978: 485) as a typical disturbance call or food association call. Similar calls are "wheep" uttered by the Great-crested Flycatcher (Myiarchus crinitus) and "pewee" uttered by the Eastern Wood-Pewee (Contopus virens) (National Geographic Society 1983; 282 and 284). One of the male sharp-shinneds frequently perched close-by and once allowed us to approach within 10-15 meters before taking flight.

Initially, we feared the nest tree may have been cut during the logging activities. However, the intact nest tree was discovered on the lower portion of the logged area on the east facing slope of the ridge. Nearby residents stated that logging operations were taking place in the nesting area from early June at least until 4 July. Sharp-shinneds prefer the lower portion of a nest-site slope in the western part of their breeding range as well (Hennessy 1978). The nest was placed approximately 17 m above the ground near the trunk of a short-leaf pine (Pinus echinata). The nest tree was 19.3 m tall with a diameter at breast height of 21 cm. The nest was constructed of pine twigs, and the nest cup was lined with pieces of bark and contained some pine needles. The nest appeared to have been constructed for the 1985 season and not one that had been used in previous seasons or by other birds as has been suggested for the species (Bent 1937; Jones 1979). An access road running parallel to the ridgeline was located within 30 m of the nest tree. Elevation at the nest site was approximately 960 feet above sea level.

The nest tree was climbed to investigate the contents



of the nest. Numerous eggshell fragments were collected and the skeletal remains of a Mockingbird (Mimus polyglottos) and a Downy Woodpecker (Dendrocopos pubescens) were collected from the nest cavity. We also searched for prey remains under a nearby dead tree which was frequented by the young hawks, and there we collected fathers and skeletal remains of the Yellow-billed Cuckoo (Coccyzus americanus) and feather remains of the Mourning Dove (Zenaida macroura) and the Mockingbird.

Using methods described by Anderson and Hickey (1970) and Morrison and Walton (1980), it is possible to obtain a chronology of breeding activity. Based on behavioral observations at the nest site, we estimated that the young hawks had fledged approximately three weeks earlier. Platt (1973) reported that fledgling sharp-shinned remain together for at least three weeks. The young hawks at the Jefferson County site remained together during our visit but would occasionally disperse in different directions for brief periods. Therefore, on the basis of a nestling period of 21-24 days (Jones 1979), the young hawks were approximately 42-45 days old when the nesting territory was discovered. The approximate hatching and fledging dates then were estimated to be 10-13 June and 1 July, respectively. Young sharp-shinned at one nest in Cleburne County had hatched by 2 June and fledged by 2 July (Bill Summerour, pers. comm.). Hatching and fledging dates may vary, however, due to weather or individual variation.

An estimate for incubation periods for the sharp-shinned is 30-32 days (Jones 1979). Using these figures with our previous estimates, we estimated a laying date of 12-14 May. This estimate is not consistent, however, with previous egg dates recorded for Alabama. The nest in Lee County contained two eggs on 26 April and the nest in Cleburne County contained one egg on 19 April (Summerour, pers. comm.). The latter nest was revisited on 14 May at which time four eggs were found in the nest. The average clutch size for the sharp-shinned is reported to be 3.5 (Jones 1979). Thus, our 12-14 May laying date estimate may actually represent an approximate clutch completion date for Alabama.

A south to north progression in time of egg-laying has

been reported for sharp-shinned in the western United States, but not elsewhere (Jones 1979). In addition, Jones examined egg-laying dates reported by Bent (1937) for northeastern North America and found that laying dates ranged from late May to early June. Our estimates, together with Summerour's data, suggest that a south to north progression in egg-laying dates may also occur in eastern North America.

Summerour observed early nest construction and copulation by sharp-shinned during the third week of March in Alabama. Jones (1979) reported that pair formation, nest construction and the initiation of copulation requires 2-4 weeks once pairs arrive in the nesting territory. On this basis, we estimate that breeding Sharp-shinned Hawks arrive on their nesting territories in Alabama sometime in late February or early March. Obviously, more detailed observations are needed on specific egg-laying, hatching and fledging dates throughout the sharp-shinned's southeastern range. Nevertheless, the nesting dates reported here provide a basis for future comparison.

Our 10-13 June estimate of hatching date for the Jefferson County pair indicates that eggs were still being incubated when the logging operations began. That the incubation period is a critical time in the reproductive cycle of raptors and other birds is well known. Not only is embryo development threatened by extreme fluctuations in ambient temperature, but parent birds may be forced to abandon the nesting effort due to disturbance. A disturbance early in the incubation period may not prevent recycling, but if abandonment occurs late in the incubation period re-nesting may not be attempted. Accipiters have been known to desert their nests following a single visit by an observer or in response to logging or other prolonged activity nearby, and smaller species abandon less readily due to disturbance than do larger ones (Newton 1979). In one instance in Utah, a pair of Sharp-shinned Hawks continued incubation and raised young while a house was being constructed less than 50 m from the nest. The nesting territory had been occupied for 6 breeding seasons prior to the house construction but has not been occupied since (Joseph R. Murphy and David L. Fischer, pers. comm.). Nevertheless, we are amazed that the Jefferson County pair

were so tolerant to logging operations taking place literally right below the nest. Prolonged disturbance may not disrupt the latter stages of nesting activity but may cause breeding pairs to abandon a given territory in subsequent years.

The roadway near the nest was not recent and did not appear to have been cut to allow access for the logging operations. Numerous accounts of sharp-shinned nest-site characteristics have been published, but preferred forest types and geographic situations vary throughout the range, making generalizations difficult. One characteristic does appear to be found throughout the sharp-shinned's nesting range, however, and that is a preference to select a nest tree near roadways, trails or stream beds (Hennessy 1978; Jones 1979). Hennessy suggested these sites might be associated with prey availability and hunting strategy, but the matter has not been adequately addressed. Selection of nest sites near more open areas may be associated with delivery of prey to the nest by the parent birds. Roadways, trails, creek beds, streams, etc., provide natural corridors to the nest (Clayton M. White, pers. comm.). A parent bird using these corridors for unobstructed return to the nest would expend less energy in prey delivery than would be required to maneuver through the forest. On the other hand, the matter may simply represent a case of recurring coincidence. Most field observers frequently utilize natural corridors for ease of visibility. Thus, what appears to be a preference by the Sharp-shinned Hawk for selecting nest sites in the vicinity of natural corridors may actually be a reflection of observer bias. This phenomenon is another aspect of raptor ecology which needs to be addressed further, particularly for comparison of southeastern nest-site characteristics with those from other parts of the sharp-shinned's nesting range.

At no time were adult Sharp-shinned Hawks observed at the nest site. Parent males usually leave the nesting area when the eggs hatch and only return to deliver food, while parent females remain with the young until they are at least two weeks of age before spending considerable time away from the nest (Platt 1973; Jones 1979). The Sharp-shinned Hawk occurs in over 25% of the State during

the breeding season (Imhof 1976), and the species is probably a more common nester in Alabama than has been previously reported. Summerour has observed territorial sharp-shinned frequently during April in Cleburne County for a number of years. Sharp-shinned in the northwestern United States typically occupy nest sites for a maximum of 2-5 years (Platt 1973; Reynolds 1978). Nevertheless, its secretive nature, habitat preference and small size will continue to challenge even the most experienced field ornithologists who seek out the nest of the Sharp-shinned Hawk in the southeastern portion of its range.

In summary, the habitat preference and nesting chronology of Sharp-shinned Hawks breeding in Alabama can be characterized as follows: 1) adults arrive in the nesting territory sometime in late February or early to mid-March; 2) nest sites are usually chosen on the lower portion of easterly facing hillsides in stands of mixed hardwood-conifer forests; in some cases nest sites may be chosen near old roadways, trails, stream beds or similar natural corridors; 3) nests are usually placed in a pine, either loblolly or short-leaf; nest height varies from 6-18 meters above ground; nests are usually lined with small pieces of pine bark or other vegetation; 4) egg laying begins in mid to late April and clutches are usually completed by mid-May; 3 or 4 eggs are usually laid; 5) eggs hatch in early to mid-June and young fledge in early to mid-July; 6) sibling groups may be observed in the nesting territory up to three weeks prior to individual dispersal; 7) a south to north progression in breeding activity is indicated for the eastern portion of the range of the Sharp-shinned Hawk based on nesting chronology of the species in the southeast.

Sincere appreciation is extended to Bill Summerour for generously sharing his field notes and knowledge of Sharp-shinned Hawk nesting activity in Alabama and for his comments on the manuscript. Roxie C. Laybourne of the U.S. Fish and Wildlife Service generously gave of her time to identify collected prey remains. Roxie's expertise in this field is well known and greatly appreciated by the authors. Clayton M. White, Joseph R. Murphy, David P. Midell and David L. Fischer provided helpful comments on the manuscript.

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NESTING RECORDS FOR THE SHARP-SHINNED HAWK  
(ACCIPTER STRIATUS) IN ALABAMA

Bill Summerour

Sharp-shinned Hawks (Accipiter striatus) have been recorded in summer over the entire state except Mobile and south Baldwin Counties (Imhof, 1976) and nest wherever they occur during the spring and summer months. They are apparently nowhere abundant in Alabama during the breeding season from March through July, ranging from uncommon to fairly common in areas of favorable habitat. The species is statewide during the non-breeding season and is most

common on the coast during fall migration (Alabama Agricultural Extension Service, 1984).

In the late 1800's, Dr. William Avery listed the Sharp-shinned Hawk as a resident and breeding species at Greensboro in Hale County, and Edward Graves considered the species a common breeder on Sand Mountain (Howell, 1928). But it was not until 1954 that the first positive breeding evidence of a nest containing eggs was found by the author near Moore's Mill Creek, approximately 3 miles southeast of Auburn, in Lee County (Figure 1). Two other nests have since been found by the author, both in Cleburne County in northeast Alabama. A fourth nest, discovered by Jim Parrish and George Wise near Old Camp Cosby in Jefferson County, was found and described after the young had fledged from the nest.

The first nest found in 1954 was discovered by the author on 25 April in the Piedmont hill country near Auburn. The nest was about eight meters (25 feet) above the ground in a rather dense, loblolly pine (Pinus taeda), 30 centimeters in diameter and 13 meters in height growing on a gently sloping, mixed pine hardwood hillside. As I walked under the tree to get a better look, a Sharp-shinned Hawk suddenly darted from the nest and flew off into the woods.

The nest, as viewed from below, was large enough to conceal the sitting female and was a compact structure of twigs of uniform size placed against the trunk of the tree and supported by several limbs growing out from one side of the trunk. It was concealed within the crown of the tree which had limbs reaching to within 3 meters of the ground.

The following day, on 26 April, I returned to climb the tree and this time the female didn't flush until I started up the tree. The nest held two pale bluish-gray eggs, heavily blotched and spotted with rich chestnut brown and chocolate. There was no lining of bark chips, the eggs resting directly on the twig floor of the slightly concave nest. The twigs lining the middle of the nest were smaller than those making up the rest of the nest, and were interwoven to form a slightly concave platform for the eggs.

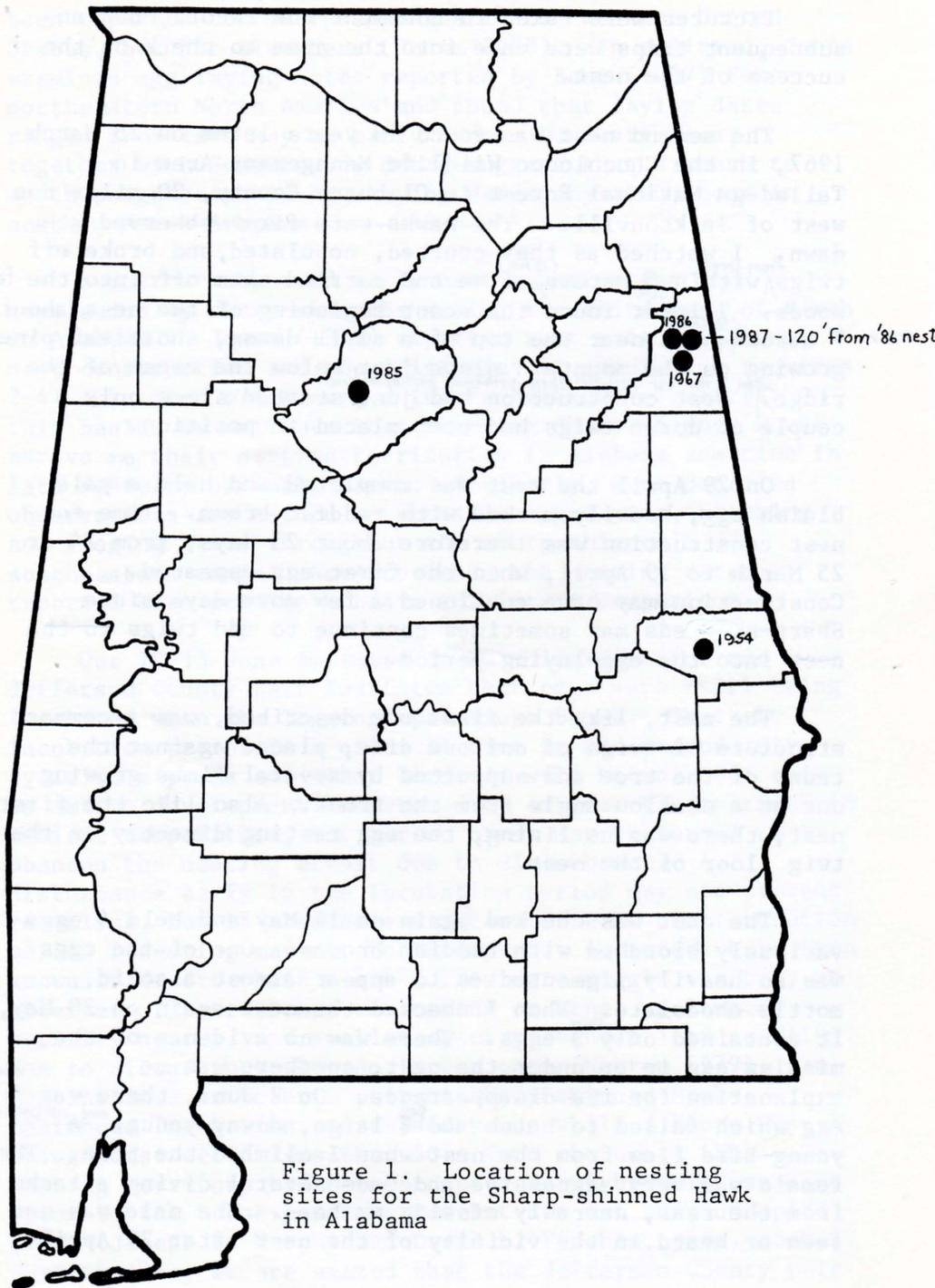


Figure 1. Location of nesting sites for the Sharp-shinned Hawk in Alabama

Pictures were taken to document the record, but no subsequent trips were made into the area to check on the success of the nest.

The second nest was found 13 years later on 25 March 1967, in the Chocolocco Wildlife Management Area in Talladega National Forest in Cleburne County, 20 miles due west of Jacksonville. The hawks were first observed at dawn. I watched as they courted, copulated, and broke off twigs within 5 meters of me and carried them off into the woods. I later found the scant beginning of the nest about 7 meters high near the top of a small dense, shortleaf pine growing on the mountain slope just below the crest of the ridge. Nest construction had just started since only a couple of dozen twigs had been placed in position.

On 29 April the nest was completed and held a pale bluish egg, heavily marked with reddish brown. Time for nest construction was therefore about 25 days, from 24 or 25 March to 19 April, when the first egg appeared. Construction may have continued a few more days since Sharp-shinned may sometimes continue to add twigs to the nest into the egg-laying period.

The nest, like the first one described, was a compact structure of twigs of uniform size, placed against the trunk of the tree and supported by several limbs growing out at a shallow angle from the trunk. Also like the first nest, there was no lining, the egg resting directly on the twig floor of the nest.

The nest was checked again on 14 May and held 4 eggs variously blotched with reddish browns. One of the eggs was so heavily pigmented as to appear almost a solid, mottle chocolate. When I checked the nest again on 20 May, it contained only 3 eggs. There was no evidence of the missing egg in or under the nest, so there was no explanation for its disappearance. On 2 June, there was 1 egg which failed to hatch and 2 large, downy young. A young bird flew from the nest when I climbed the tree. The female was very aggressive and made several diving attacks from the rear, narrowly missing my head. The male was not seen or heard in the vicinity of the nest after 29 April.

The complete nesting cycle required about 100 days or 14 weeks, from 25 March, when nest construction first started, until 2 July, when the last of the 2 young flew from the nest.

A third nest was found on 21 April 1986 in the Chocolocco Wildlife Management Area in Talladega National Forest, about 3 miles from the 1967 nest. I was first alerted to Sharp-shinned in the area by their soft piping notes, coming from a Virginia Pine (*Pinus virginiana*) thicket. I saw a female Sharp-shinned through the thicket as she flew up on a limb about 17 meters in front of me. She was nervous and moved her head from side to side in an effort to get a better view of me through the trees. After about 5 minutes she dropped from her perch and flew straight at me, wings set, threading her way through the thicket. At the last second she flared a foot in front of my head and lit on a limb about 3 meters over me, peering down intently. She remained there looking at me for about half a minute then flew off into the woods.

A search of the area revealed the nest on the edge of the pine thicket and on top of a ridge. The nest, like the other 2 described, was a bulky but compact structure of small twigs placed about 7 meters above the ground against the trunk of a very rough Virginia pine. The ridge formed a dividing line between the dense pine thicket and a relatively open area about one-eighth ha in size on the other side. The entire area had been burned over the previous winter killing the second growth hardwoods and some of the pines.

I returned on 25 April and observed the pair for about an hour as they broke off twigs with their beaks and carried them back to the nest. On 4 May the female appeared to be incubating but the male was still busy snapping off twigs and taking them to the nest. The female would occasionally leave the nest and fly off a short distance to break off a twig and carry it back to the nest. On 9 May I returned to climb the tree and check the contents of the nest. As with the other 2 nests described, the female did not flush until I started climbing the tree. She called from the thicket but did not attack. The nest contained 4 dull whitish to pale bluish eggs, all heavily

blotched with reddish brown, chestnut and chocolate and similar to those already described from the other 2 nests.

The nest was constructed entirely of small twigs neatly and compactly interwoven and measured approximately 45 centimeters across. The floor of the nest was slightly saucer shaped and composed of smaller twigs. As in the other two nests, there was no lining. Some down was clinging to the rim and nest cup, a tell-tale sign that a nest is in use.

On 10 June the nest held 4 small, downy young barely strong enough to hold their heads up. I judged them to be only 2 or 3 days old. This estimate would be about right assuming the female was on eggs on 4 May as she appeared to be. Newton (1979) lists the incubation period for Sharp-shinned Hawks as 31-34 days, in which case the young on 10 June would be 2 to 5 days old.

On 5 July two of the fledglings were perched on a limb about 1 meter from the nest. The other 2 were not seen and had apparently fledged. The female flew about calling in defiance but did not attack. The male was not seen on any of my visits after 4 May, about the time that incubation began. This was also the case with the other two nests described. Pictures were taken of the nest and eggs but none were obtained of the nestings.

Pellets, bone fragments, skulls and feathers were collected from the nest and from under the tree and sent to the Smithsonian Institute in Washington, D.C., where they were identified by Roxie Laybourne and Beth Ann Gilroy of the Fish and Wildlife Service. The feathers were identified as those of a Wren (Thryothorus ludoviciana), Yellow-billed Cuckoo (Coccyzus americana), Tufted Titmouse (Parus bicolor), Meadowlark (Sturnella magna), Indigo Bunting (Passerina cyanea), and Field Sparrow (Passerina pusilla). The skeletal parts of two Yellow-billed Cuckoos and the skulls from a Carolina Chickadee (Parus carolinensis), Carolina Wren and Field Sparrow. The remains of one long-horned grasshopper were also collected from the nest.

## Summary

Sharp-shinned Hawks have been recorded over the entire state during the summer months and probably nest wherever they occur during the breeding season from March through July. They appear to be fairly common wherever extensively forested areas of suitable habitat exist.

The first positive breeding record for Alabama was a nest containing 2 eggs found by the author near Auburn in Lee County on 25 April 1954. Two other active nests have since been found, both in Cleburne County.

All 3 of the nests were in forested areas, but there was no pattern as to the selection of nesting sites or to the nesting site in relation to woodland "corridors," or roads.

All 3 of the nests were compact structures of twigs placed against the trunks of pines growing in pine thickets or mixed pine-hardwood forests. The nests were rather low, between 7 and 10 meters above the ground.

Both sexes shared in nest construction, but the male seemed to have the most active role. All of the twigs were gathered by the birds snapping them off with their beaks from limbs in the immediate vicinity of the nest. Nest construction required about 25 days. The 3 nests observed by the author had no lining.

The first nest found by the author on 25 April 1954 contained an incomplete set of two eggs. The other 2 nests held 4 eggs each. In one of these, 1 egg did not hatch and another disappeared without explanation. The eggs were highly variable in color, ranging from dull white to bluish-gray, boldly and heavily blotched with reddish brown, chestnut, and chocolate.

Egg dates were from 19 April to 20 May but eggs were no doubt in one of the nests into the first week of June since the nest held young only a few days old on 10 June. Young were in the nests from late May through 5 July.

## Acknowledgments

I am appreciative for the identification of prey remains provided by Roxie Laybourne and Beth Ann Gilroy of the Fish and Wildlife Service and to Randy Liles, Manager of the Chocolocco Wildlife Management Area, for his time and help in photographing one of the nests located on the management area.

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Request for Assistance - As part of a species restoration project in north Alabama, 122 great white egrets (Egretta alba) have been "hacked" near Guntersville Reservoir. Each egret is marked with a 2-inch red flag attached to a FWS leg band. Sightings should be reported to:

Burline Pullin  
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Norris, Tennessee 37828  
Telephone: (615) 632-1642.

Please note number and location of egrets and the date of observations.

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